Nurses' Performance Regarding Patient Safety in Emergency Operating Rooms

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Abstract

Background: By implementing patient safety programmes, nurses play a critical role in improving healthcare. A patient safety culture assessment will help improve nurses' performance by identifying the nurses' impressions of the culture and examining their training and expertise about patient safety. **Aim of the study:** Evaluate Nurses' Performance Regarding Patient Safety in Emergency Operating Rooms. **Subjects and Methods: Research design:** A descriptive approach has been used. **Setting:** The research was carried out at the emergency operating rooms of the Zagazig University Hospitals. **Subjects:** A convenience sample which composed of 70 nurses. **Tools of data collection:** The data for this study was gathered using three different instruments: Tool I: The study nurses' personal qualities and knowledge were assessed using an interview questionnaire. Tool II: Observational checklist to determine the degree of patient safety measures in emergency operating rooms and Tool III: An instrument for gauging nurses' attitudes toward patient safety, a large percentage (52.9%) of nurses surveyed had inadequate comprehensive knowledge. More than a third (38.5 %) of the nurses surveyed practiced unsafely in emergency operating rooms when it came to patient safety. More than seventy percent of the nurses evaluated had a poor outlook on patient safety in emergency operating rooms. **Conclusion:** There was a lack of understanding, practice, and attitude towards patient safety in emergency operating rooms among the majority of nurses evaluated. All of the variables related to patient safety in emergency operating rooms were shown to have a statistically significant relationship. **Recommendation:** Continuous educational poster and training program should be designed particularly to the younger nurses with short duration of experience in emergency operating room.

Keywords

Emergency operating room, Nurses' performance, Patient safety, knowledge, practice, Attitude.

Introduction

The whole operating room (OR) team (surgical, anaesthetic, and nursing workers) is subjected to a high level of cognitive stress while maintaining focus and completing frequently challenging and highly accurate duties in an operating room setting [(1)]. In the past decade, patient safety efforts have been widely implemented, yet recent statistics show that the rate of surgical complications remains unacceptable. Approximately 7 million surgery patients are projected to experience major complications of adverse events each year, as well as up to one million of these patients are expected to die. [(2)].

Because of the high incidence and high preventability of adverse surgical events, patient safety has been seen as a set or series of strategies and interventions aimed at keeping patients safe during medical procedures. These events can occur in the OR anywhere from 5% to 17% of the time, but only 60% of them are actually preventable [(3)].

There must be no preventable injury to patients while they get medical treatment, and the risk of unwarranted harm must be kept to a minimal to be considered acceptable in the discussion on patient safety [4].

It is essential that basic nursing care places an emphasis on the safety of the patients. Nurses should be responsible for educating patients about potential dangers and strategies to minimise them, as well as advocating for patient safety and reporting any adverse events that occur. From this vantage point, nurse safety procedures are a critical aspect of OR patient care [5].

The three phases of intraoperative treatment are preoperative, intraoperative, and postoperative. These phases begins when the patient arrives in the anesthetic room or operating theater and ends when the patient transferred to the post anesthesia care unite, where post-surgical care is delivered to the patient. Nurses have a critical role in ensuring the safety of patients during these stages [6].

There are many things a nurse does in the preoperative stage, like keep a record of what happened when the patient came in, make sure the patient is ready for their surgery, and make sure everything is ready for it. At this time, the nurse is responsible for all surgical support, which includes fulfilling all the surgical and anaesthetic demands for supplies, tools, and technology. Early diagnosis and management of surgical and anaesthetic problems, clinical treatment of complications, and pain management are the nurse's responsibilities in the postoperative period [7].

For patients' safety, it is critical to monitor and improve operating room nurses' safety attitudes. A well-trained nursing staff, for example, is essential to ensuring high-quality patient care while also reducing the risk of serious harm or death to patients. [8].

Significance of the study:

In today's healthcare environment, patient safety is a top priority. In order to make the healthcare system as safe as possible, a number of challenges must be solved, as millions of mistakes occur every day in the health sector, which can hurt or even kill patients [9].

Inpatient surgical treatments in Egypt have been established to have a complication rate of 3-22 percent and a fatality rate of 0.4-0.8 percent, according to a study [10]. The purpose of this study was to determine how well emergency operating room nurses are doing when it comes to ensuring patient safety.

Aim of the study: The objective of this paper was to evaluate nurses' performance regarding patient safety in Emergency Operating Rooms

Research Questions:

1. How well-versed are nurses in emergency operating rooms in terms of patient safety?
2. What are the nurses' levels of practice in emergency operating rooms with relation to patient safety?
3. What is the attitude of emergency room nurses toward patient safety?

Subjects and methods:

Research design:

The design was descriptive. If you're interested in finding out how one or more variables are distributed, you'll do a descriptive research Aggarwal & Ranganathan, [11].

Study setting:

The current study was conducted at the emergency operating rooms at Zagazig University hospitals, which located in the fifth floor and consists of recovery area, one room for equipment sterilization, four rooms for operating team clothes exchange and eight operating rooms (one room for general surgeries, one room for pediatric surgeries, one room for vascular surgeries, one room for infected cases, two room for orthopedic surgeries, one room for neurosurgeries, one room for ENT surgeries).

Study subjects:

A convenient sample of all 70 emergency operating room nurses at Zagazig University Hospitals were included in the study.

Tools of data collection:

The essential data was gathered using three different methods. **Tool I: Nurses' Structured Questionnaire**: Composed of two parts:

Part1: utilized for evaluating individual factors such as age, gender, years of experience, educational attainment, marital status, and participation in training programmes.

Part (2): To evaluate nurses' understanding of patient safety within emergency operation theatres, the second part includes five components (environmental safety, preoperative preparation, intraoperative care, postoperative care and precautions in emergency operating rooms). The researcher changed and altered it. (28 MCQ & True and False questions) **Alaa-Eldeen et al.,** [(12)].

The cumulative grade point average for the knowledge component was 28. (100 percent). Each right answer received one point, while wrong answers and don't know received 0 points. The scores of the items in each field of knowledge were added together and the sum divided by the total number of items, yielding a mean score for the section. These results were converted to percentile rankings. According to statistical analysis, knowledge was regarded adequate if the percentage score was equal to or more than 75%, and unsatisfactory if it was less than 75%.

Tool II- Observational checklist

To determine the degree of patient safety measures in emergency operating rooms, it was employed. The researcher reworked and tweaked it to her liking (12). The practise had a total score of 123 grades (100 %). It consists of three parts (sign in before induction of anesthesia (76 items), time out before skin incision (16 items) and sign out at the completion of the procedure (31 items). The sum of the scores from the items was divided by the number of items, resulting in a mean score for the part of the checklist that had been completed and not completed. These scores have been converted to percentages. If the entire score was equal to or higher than 75%, then the nurses' level of practise was good; if the total score was lower than 75%, then the practise was poor.

Tool III- Used in emergency operating rooms, it assessed nurses' attitudes toward patient safety including five different sections (team cooperative, safety climate, job satisfaction, management perception, and work conditions). It was adapted by **Özsayin & Özbayir.,**[(13)] and modified by the researcher

The overall attitude score was 24 out of 30. (100 percent). No points were deducted for wrong answers or those who stated they did not know the answer. In order to arrive at an average score for the component, we added together all of the items' scores and divided the total by the number of things. These scores have been converted to percentages. Based on statistical analysis, a good attitude was regarded if the percentage score was equal or above 75%, while a negative attitude was considered if the percentage score was less than 75%.

Validity& Reliability:

They have been revised via a group of seven experts of a variety of fields, including medical and nursing faculty members, who included a professor of medical surgical nursing and 5 assistant professors of medical surgical nursing, who all worked together to ensure that the tool's content was crystal clear, relevant and comprehensive, and that it was easy to understand and implement. All of the desired alterations were carried out. The knowledge questionnaire's Cronbach's Alpha was 0.82. According to the practice checklists, the reliability rate was 0.979. The attitude's dependability was 0.642.

Fieldwork

A schedule has to be developed in order to gather the data. The researcher attended the study site in order to get a sense of the work process, the amount of time it takes to complete a task, and to collect data by observing nurses with study environments on a preset timetable.

Interviews with nurses who met the study's criteria were conducted on-site by the researcher. Afterward, nurses were requested to complete the survey after being given an explanation of its goals. Afterward, each nurse will be asked to fill out a questionnaire that spans three shifts. To observe nurses' practical abilities concerning the technique that had been researched. During the course of each day, the researcher observed three nurses' practical abilities. Between 30 and 45 minutes is necessary to finish the checklist, however this depends on the kind of operation. For the self-administered questionnaire, allow anything from 15 to 30 minutes.

In the months of September 2020 and March 2021, researchers conducted fieldwork. Every week, the researcher was accessible at Zagazig University Hospital's emergency operating rooms on Saturday and Sunday for two hours each time.

Pilot study:

Pilot tests were conducted to assess the usefulness, applicability, relevance and practicality of data gathering technologies. A total of seven (10%) operating room nurses were chosen at random to participate in the questionnaire as well as checklist pilot testing and were not removed from the study sample due to any changes to the instrument.

Administrative and ethical considerations:

The Dean of the Faculty of Nursing at Zagazig University sent this letter to summarize the purpose of the study and it was sent to the hospital's administrative staff to obtain permission and assistance in data collection. During the interview, each subject learned about the research's goals and advantages, and the nurses learned that participation in the study was completely optional and that they may opt out at any time, for any reason. In addition, the subjects' privacy and identities were safeguarded by coding all of the data. The researcher promised that the information gathered would be kept private and utilised solely for the benefit of the nurses involved in the study.

Statistical analysis:

SPSS 20.0 for Windows was used to compile and analyse the data (SPSS Inc., Chicago, IL, USA 2011). Quantitative data was conveyed using mean SD & (range), whereas qualitative data was conveyed using absolute frequencies (number) and relative frequencies (percentage). The Chi-Square test or Fisher's exact test might be used to compare percentages of categorical variables. There is a strong relationship between study variables when the Spearman's rank correlation coefficient is near 1, and a weak relationship between study variables when the correlation coefficient is near 0. The (+) sign indicates that there is a direct correlation, while the (-) sign indicates inverse correlation. Two-sided testing was used in all of the experiments. When the p-value was less than or equal to 0.05, it was deemed statistically insignificant (S) (NS).

Results:

The study sample's personal characteristics (Table 1) indicated that 52.9% of the nurses were younger than 30 years of age, with a mean age of 30.56.05 and 75.7% of the nurses being female. 54.3 % of the nurses who took part in the research were married. 42.9

percent of nurses attended a nursing technical institute. In addition, 57.1 % of the nurses evaluated had worked in operating rooms for at least five years. According to the results of this study, 38.6% of the nurses examined had previously taken patient safety training in emergency operating rooms.

Table 2 revealed that 47.1 % of the nurses tested had a suitable level of overall knowledge score, whereas 52.9 % had an unacceptable overall knowledge level and practice, with a mean ± SD of 20.51±2.83.

Table 3 indicated that 38.6 % of the nurses investigated had an unacceptable level of total practice score, when it came to patient safety in emergency operating theatres, 61.4 % of the nurses seemed to have a satisfactory level of overall practice score, with a mean ±SD of 93.1±12.57.

Table 4 shows that 22.9 percent of the nurses tested had a good overall attitude score, whereas 77.1 % seemed to have an unfavorable view toward healthcare quality at emergency operating theatres, with a mean ±SD of 13.97±4.76.

Table 5 demonstrates a substantial relationship between overall knowledge and overall practise scores (r = 608** at p = 0.0001), as well as the attitude of nurses in emergency operating rooms (r =.503** at p = 0.0001), among the nurses tested.

Table 6 depicted the total factor variability influencing the examined nurses' practise related to patient safety in the emergency operating room. It was shown that the most affected component in terms of patient safety was planning and coordination (91.4 %), while the least affected aspect was emergency operating room environmental design (1.4 %).

Discussion:

There were more than three-quarters of female nurses and over half of those under a age of 30, according to this study. Historically, the feminine gender outnumbered the male in the nursing profession due to the overwhelming majority of nurses being female. Furthermore, 50% of the nurses in the study were married but had a mean of 7.8±6.2 years of experience in the operating room. A nursing professional institute was attended by almost a third of a nurses polled. For bachelor's degree nursing jobs, licensure as an administration instead of a practitioner may be to blame.

According to the findings of Asghari et al. [14] in "Musculoskeletal pain in operating room nurses: associations with quality of life, working posture and socio-demographic and job characteristics," more than one-third of the nurses studied (40.1 %) had a technical institute in nursing degree.

Of the nurses questioned, more than half had never attended any kind of patient safety training. This might be attributed to a decline in the accessibility of hospital management-provided training courses. This finding contrasted the findings of Sillero et al. [15], who reported that in the research "A. In a study examining "organisational characteristics and burnout among perioperative nurses," over than half of the nurses surveyed said they had taken patient safety training courses. In the research, more over a 1/3 of the nurses had already taken a course on operating room patient safety.

The recent study revealed that the majority of the nurses surveyed had an insufficient awareness of patient safety within emergency operating rooms. This might be because there aren't enough clinically relevant scientific teaching activities taking place by direct supervisors in the hospital to refresh the nurses' knowledge, It might be due to a mix of circumstances, including a lack of hospital management oversight and focus to provide nurses with this expertise. The most of of operating room nurses have only a a low or intermediate educational level, hence they lacked sufficient information about patient safety and access to patient safety training courses.

In a similar vein, Nakhaee et al. [16] discovered in their study "Investigating Nurses' Understanding and Self-Efficacy About the Fundamentals of Preventing Infection in the Operating Room" that more than half of the nurses tested had inadequate knowledge related to patient safety. This is in contrast to Fajemilehin et al. [17], who discovered in their study on "Safety Practices Employed by Perioperative Nurses at Selected Tertiary Health Institutions in South Western Nigeria" that the most of nurses had high awareness of patient safety.

During the three stages of surgery, more than a 1/3 of the nurses in the research had unacceptable overall practise inside the operating room for patient safety (sign in, time out, sign out). It's possible that this is due to a dearth of bachelor's degree holders in the study's nurses, insufficient training, or excessive workload. A nurse's burnout is exacerbated by the fact that there is a lack of information about patient safety, a shortage of medical education about patient safety, an absence of nurse training courses, a dearth of uniform nursing care procedures, and an absence of a manual book containing all the necessary nursing procedures for patient safety in an emergency operating room. As a result, nurses in emergency operating rooms are not performing at a level adequate for patient safety.

To back up these claims, a recent research by Ali, et al. [18] found that almost one-third of the nurses in the study had unacceptable overall practises for patient safety in the operating room. According to the study "Excellent practises for patient safety in the operating room: nurses' suggestions" by Gutierres et al. [19], the research discovered that nursing staff members who participated in the study displayed strong operating room safety practices.

The researchers discovered a statistically significant relationship between nurses' overall grasp of consumer health in the emergent operating room and the quantity of total nursing staff' practise and attitudes. This might be a technique to enhance one's talents by putting what one has learnt into practise .

Our findings were corroborated by zsayin et al. [20], who reported in a study titled "Attitudes of operating theatre workers toward patient safety" that there was a positive correlation coefficient between the total knowledge of studied nurses regarding patient safety in emergency operating rooms, the level of total nurses' practice, and the total nurses' attitude. Additionally, this finding was consistent with Admasu et al. [21] who reported in their study "Job Satisfaction and Associated Factors Among Nurses Working in the Operation Theater at Government Hospitals in Eastern Ethiopia, 2017" that there was a positive correlation between the studied nurses' level of practise, knowledge, and attitude toward patient safety in emergency operating rooms.

The present findings demonstrated that the most of the examined nurses claimed that their practises towards patient safety in the room of emergency operating were influenced by a number of relevant issues. A similar study by Gouda et al., [22] found that the majority of the investigated nurses' practises were impacted by these characteristics.

Al Quds university in Palestine conducted a study entitled " Selected Organizational Factors Affecting Performance of Professional Nursing in North West Bank Governmental Hospital" that found that about three-quarters of the studied nurses reported that their practice had been affected by organizational related factors lister et al., . [23].

Conclusion:

In the research, more than 50% of the nursing staff have insufficient knowledge, and over a third had insufficient practise as a whole, as the results show, and also more than three-quarters had a negative attitude forward into patient safety in emergency operating rooms. Overall knowledge, overall practise, and overall attitude scores all had a statistically significant relationship.

Recommendations:

- All operating room nurses should participate in training programmes to increase their knowledge and practise, as well as to reinforce a constructive attitude towards patient safety.
- Strict observation of nurses during work and continuous evaluation of their performance and correction of mal practice is essential.
- Standardized nursing procedure booklet and guidelines regarding patient safety for the nurses should be available at the emergency operating rooms to guide nurses in maintaining patient safety.
- Further study is needed to evaluate the impact of specific training programmes or interventions on the performance of nurses in the emergency operating room.

Table 1: Personality Qualities Nurses' Study Data (n=70)

Items	No	%
Age		
<30 years	37	52.9
≥30 years	33	47.1
Mean ±SD Median(range)	30.5±6.05 29 (19-49)	
Gender		
Males	17	24.3
Females	53	75.7
Education		
Diploma	21	30.0
technical institute	30	42.9
Bachelors'	19	27.1
Marital status		
Single	20	28.6
Married	38	54.3
Others	12	17.1
Residence		
Rural	62	88.6
Urban	8	11.4
Years of experience		
≤5 years	30	42.9
>5 years	40	57.1
Mean ±SD Median(range)	7.8±6.2 6(1-30)	
Training		
Yes	27	38.6
No	43	61.4
Income		
Sufficient	46	65.7
Insufficient	24	34.3
Medical check up		
Yes	35	0.50
No	35	0.50
HB Vaccine		
Yes	38	54.3
No	32	45.7

Table 2: Numbers and Percentages Patient safety knowledge distribution in emergency operating rooms: a survey of all nurses. (n=70)

Items	No	%
Total Knowledge Level (28) *		
Satisfactory	33	47.1
Unsatisfactory	37	52.9
Mean ±SD	20.51±2.83	

Range	(13-27)

Table 3: Total number of emergency operating room nurses' practises for patient safety, as well as their percentage distribution. (n=70)

Items	No	%
Total Practice Level (123) *		
Satisfactory	43	61.4
Un Satisfactory	27	38.6
Mean ±SD	93.1±12.57	
Range	(33-111)	

Table 4: A breakdown of the total number and percentage of nurses' attitudes towards healthcare quality in emergency operating rooms. (n=70)

Items	No	%
Total Practice Level (24) *		
Positive	16	22.9
Negative	54	77.1
Mean ±SD	13.97±4.76	
Range	(4-24)	

Table 5 Correlation Matrix between Studied Nurses Total Level of Knowledge, Their Total Level of Attitude and Total Level of Practice Regarding Patient Safety in Emergency Operating Rooms. (n=70)

		Knowledge	Practice	Attitude
Knowledge	**R**	-	608**	.503**
	P	-	0.0001*	0.0001*

*(r) correlation coefficient significant p < 0.05. * Insignificant p >0.05*

Table 6: Frequency Distribution of Total Factors Affecting Studied Nurses' Level of Practice Regarding Patient Safety in Emergency Operating Room (n=70)

Total Items of Factors	Factors Affected≥70%		Mean ± SD	Range
	No	%		
Training	41	58.6%	3.24±1.43	00-5
Communication	59	84.3%	1.91±0.74	00-4
Planning and coordination	64	91.4%	.36±0.64	00-2
Environmental design	1	1.4%	3.87±0.45	1-4
Equipment	62	88.6%	3.39±1.15	1-6
Maintenance	28	40.0%	1.4±0.81	00-2
Team work	25	35.7%	2.84±1.37	00-4
Team instructions	45	64.3%	1.81±1.12	00-3
Situation awareness	40	57.1%	2.26±1.37	00-4
Housekeeping of equipment	52	74.3%	1.79±0.92	00-3
Hierarchical decision making	37	52.9%	3.39±0.87	1-5

Procedures	56	80.0%	1.34±1.1	00-3
Total	56	80.0%	27.63±5.19	17-40

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